

REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Editorially amend the specification.
2. Cancel claims 1, 6, 12 – 19, 27 – 28, 32 – 33, 38 – 52 without prejudice or disclaimer.
3. Amend claims 2 – 5, 7 – 9, 20 – 22, 24 – 26, 29 – 31, and 34 – 37.
4. Add new independent claim 53 and claims 54 – 59 dependent thereon.
5. Add new independent claim 60 and claims 61 – 66 dependent thereon.
6. Add new independent claims 67 and 68.
7. Respectfully traverse all prior art rejections.

B. PATENTABILITY OF THE CLAIMS

Claims 1-16, 18-42, and 44-52 stand rejected under 35 U.S.C. 102(b) as being anticipated by Haller et al. (US Pub. No. 2002/0107673). Claims 17-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Haller et al. (US Pub. No. 2002/0107673). as applied to claims 16 and 42 above, and further in view of Zuffante et al. (US Pat. No. 6,219,049). All prior art rejections are respectfully traversed for at least the following reasons.

US Pub. No. 2002/0107673 to Haller et al. selects and configures a component (part, sub-assembly, or assembly) to be coupling with a *feature* on a solid model based on design attribute of the feature. A feature is a certain geometry characteristic that compose the total geometry of a solid. A solid may contain many features. Haller is feature-centric and mainly for assembly design. The attributes needed to conduct the behavior are stored with individual feature and component.

In stark contrast to Haller, Applicants' perspective in bringing a new part into a scene is from the viewpoint of a "connector object" on the new part, not from the perspective of a feature on an existing part. In this regard, unlike Haller, Applicant's program appreciates that there may be many ways of using the new part (with its connector object) in the scene, e.g., many places in the scene that the new part could be located/used. Specifically, new independent claims 53 and 60 require, e.g., that the program make a selection of at least one candidate connector object of multiple possible connector objects of a target solid shape for matching with a particular connector object of a movant solid shape. The independent claims further specify that such selection is based on connector object information of the at least one candidate connector object and the particular connector object of the movant solid shape, and that the movant solid shape can have one or more connector objects including the particular connector object. For support in the original disclosure, see, e.g., specification paragraphs [0066] and [0069], for example, as well as paragraphs [0059] and [0070] which teach that any part including a movant part can have plural connection objects. The program also displays the target solid shape and the movant solid shape in accordance with the matching and in accordance with configuration information of at least one of the connector objects.

US Pub. No. 2002/0107673 to Haller et al. has no such teaching or suggestion. In fact, US Pub. No. 2002/0107673 to Haller et al. is a feature-based system which operates in a completely different manner. Haller's user wants to add a particular new part to a feature which exists on a part already on the Haller screen. Haller can drop and drag the new part from a part library, or have procedure 600 (see Fig. 6 and paragraph [0049] *et seq*) automatically select a part compatible with the existing feature.

Applicants' system is not feature-based and is entirely different. When a new or movant part is dropped in a scene, Applicants' program notes at least one candidate connector object of multiple possible connector objects of a target solid shape for

matching with a particular connector object of a movant solid shape. Applicants' program further makes the selection and thus the matching based on connector object information of the at least one candidate connector object and the particular connector object of the movant solid shape. In contrast to the Haller feature-centered system, Applicants essentially allow potentially multiple connector objects of the movant solid shape to essentially shop for an appropriate existing connector object for mating.

Others of Applicants' dependent claims have separate patentable merit. For example, dependent claims 54 and 61 require that, when multiple candidate connector objects of the target solid shape exist, the program makes a selection from among the multiple candidate connector objects based on a predetermined rule. Dependent claims 56 and 63 specify that the program makes the selection from among the multiple appropriate connector objects based on a non-positional rule. Support for the non-positional rule limitation resides, e.g., in paragraphs [0079] – [0083] of applicants' specification. See particularly paragraph [0082] which explains that by "non-positional" is meant rules that pertain to attributes other than size, positional orientation, or position in space'. Certain examples of non-positional rules are the subject of dependent claims 9, 23, and 35 (preferred procurement item); 10, 26, and 36 (preferred procurement item supplied by a preferred vendor); 11, 25 and 37 (preferred procurement item in accordance with inventory or availability).

US Pub. No. 2002/0107673 to Haller et al. does not involve eligibility of plural connector objects (no multiple appropriate connector objects) on an existing part, much less the selecting from multiple candidates using a predetermined rule, and certainly not a non-positional rule.

Moreover, new dependent claims 63 and 65 specify that the program makes the selection from among the multiple appropriate connector objects based on a rule of a rule

database, the rule database can either comprising or operating in conjunction with an enterprise resource planning (ERP) system. New dependent claims 63 and 65 are supported, e.g., by paragraph [0055] of the specification.

New dependent claims 64 and 66 specify that the program makes the selection from among the multiple appropriate connector objects based on a boundary condition criteria. New dependent claims 64 and 66 derive support from paragraphs previously cited in conjunction with paragraph [0015] of the specification.

Haller selects, configures geometry, and positions a component (part, sub-assembly, or assembly) to be coupled with a feature on a solid model based on design attribute of the feature. A feature is certain geometry characteristics that compose the total geometry of a solid. A solid may contain many features. Therefore, Haller is feature centric and mainly for assembly design.

Applicants have a generic technology which facilitates creation and modification of two solid shapes and creates application specific data when the designer puts the two solid shapes together. This may include configure the geometry of both solid shapes and can determine their relative position, determine preferred procurement item, determine or creating application related data such material, boundary condition, force, etc as in a CAE (Computer Aided Engineering) application. Applicants have a general object (connector object) to store related attributes. The connector object is not tied to a Haller-type "feature". Each of Applicants' solid shapes may have any number of connector objects. When a user puts one solid shape together with another solid shape, Applicants provide rules for identifying matching pair of connector objects, which may be multiple, and use the attributes on the connector objects to control the behavior. With its generality, Applicants' technology can be applied to various applications including, but not limited, to assembly design and CAE design.

New independent claims 67 and 68 specify that Applicants' computer program attempts to match a movant solid shape from a shape library with a target solid shape for displaying the target solid shape and the movant solid shape in an association. But when such attempt is unsuccessful, the program develops a suggestion for modifying the target solid shape so that an acceptable match can be found between the target solid shape and at least one solid shape from the shape library. Support for new independent claims 67 and 68 resides, e.g., in paragraph [0092] of Applicants' specification. No such modification suggestion is taught or intimated by the applied prior art of record.

C. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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